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OPTIMALIZATION OF BREASTFEEDING TECHNIQUES USING "BREAST MODELS"

Dewi Novitasari Suhaid [1], Eviyani Margaretha Manungkalit [2*], Dyah Woro Kartiko Kusumo Wardani [3], Agustina Ida Pratiwi [4], Yetty Leoni Irawan [5], Margaretha Kusmiyanti [6]

Sekolah Tinggi Ilmu Kesehatan Sint Carolus,
Jl. Salemba Raya No. 41 Jakarta Pusat

[1] dewinovitasarisuhaid@gmail.com, [2*] evikalit@gmail.com, [3] dyahworo0@gmail.com,
[4] agustinap56@gmail.com, [5] yettyirawan@gmail.com, [6] margarethakusmiyanti@yahoo.com

Abstract

Exclusive breastfeeding is an attempt at enhancing the health and survival of infants during the initial 6 months of life. The World Health Organization (WHO) states that 2 out of 3 infants worldwide do not receive exclusive breastfeeding for the full 6 months. According to UNICEF, it is projected that by 2022, less than half (48%) of infants globally will be exclusively breastfed. The advantages of exclusive breastfeeding for infants encompass the acquisition of antibodies to prevent exposure to diseases, facilitation of brain and physical development, and mitigation of the risk of stunting. The successful practice of exclusive breastfeeding is profoundly affected by both intrinsic and extrinsic factors. Among the intrinsic factors that impact breastfeeding behavior, knowledge stands out. Insufficient or inaccurate information regarding the benefits of breastfeeding, the mechanism of milk production, as well as attachment and breastfeeding positions, are subjects that contribute to challenges in the breastfeeding process. Elevating awareness and comprehension of breast anatomy, milk production mechanisms, and proper attachment during breastfeeding among postpartum mothers will heighten self-efficacy concerning belief in behavioral change. Community service initiatives employ the health education approach utilizing a replica model of breast anatomy. The counseling sessions target parents (both husband and wife) undergoing postnatal health monitoring, and who are recipients of care in the postnatal care unit. The outcomes of this undertaking reveal a noteworthy 35% enhancement in participants' knowledge subsequent to receiving information on breast anatomy, milk production, and proper attachment."

INTRODUCTION

Exclusive breastfeeding is an endeavor aimed at enhancing the health and survival of children during their first 6 months of life. The World Health Organization (WHO) reports that 2 out of 3 babies worldwide do not receive exclusive breastfeeding for the entire 6-month period. Breast milk stands as the utmost crucial nourishment required by infants. Breastfeeding, functioning as a means of nutrient intake for the body, constitutes a secure and hygienic process, additionally containing antibodies that shield the body (WHO, 2022).

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The process of exclusive breastfeeding entails providing breast milk from the initial hour after birth up until the culmination of the first 6 months of life, while refraining from introducing solid foods and other fluids, including water. This breastfeeding regimen is advised to persist until the child reaches 2 years of age. This delineation is also encompassed within a governmental policy, specifically PP No. 33 of 2012 concerning Exclusive Breastfeeding (UNICEF, 2022; WHO, 2022a).

UNICEF projects that globally, by the year 2022, fewer than half (48%) of infants will experience exclusive breastfeeding. In the same year, Southeast Asia is anticipated to exhibit an average exclusive breastfeeding rate of 61%. This prevalence demonstrates a decrease from the previous year, which marked a rate of 69% (UNICEF, 2022).

The benefits of exclusive breastfeeding that can be acquired by infants include the acquisition of antibodies that prevent disease exposure, assistance in brain and physical development, and the prevention of stunting (Hadi, 2021). Moreover, mothers also obtain advantages from exclusive breastfeeding, such as recuperation from childbirth trauma, reduced risk of breast cancer, and reinforcement of the mother-child bond (Kemkes, 2018).

Exclusive breastfeeding is significantly shaped by both intrinsic and extrinsic factors that impact its success (Manungkalit, Pratiwi, Suhaid, & Irawan, 2023). Knowledge represents a key intrinsic factor that influences breastfeeding behavior. Scarce or inaccurate information about the advantages of breastfeeding, the mechanism of milk production, attachment, and breastfeeding positions are subjects that hinder the smooth progression of the breastfeeding process (Yusrina, 2017). The concept of Breastfeeding Self Efficacy occupies its unique sphere and exerts influence on the breastfeeding process. This theory posits that an individual's belief in their capability to breastfeed fosters emotional resilience within them (Ramie, 2014).

Exclusive breastfeeding for infants within the initial 6 months of life stands as an indicator listed in the Ministry of Health's Strategic Plan for the 2020-2024 period, as well as being featured in the Strategic Plan of the preceding period. This indicator about exclusive breastfeeding also serves as an Activity Performance Indicator for the Directorate of Community Nutrition and is interconnected with the national goal of accelerating stunting reduction (KemenPPPA, 2020).

In the year 2021, the attainment rate of exclusive breastfeeding stood at 56.9 (Indonesia, 2022). This coverage has shown a decline when juxtaposed with the achievement recorded in 2019, which reached 67.74% (Indonesia, 2020). This regression could potentially be attributed to the nationwide health crisis triggered by the Covid-19 pandemic, impeding the accessibility of counseling and support for the lactation process (Aningsih & Suhaid, 2023). A survey jointly conducted by the Ministry of Health and UNICEF in 2021 uncovered that fewer than 50% of mothers or caregivers of children under 2 years of age received breastfeeding counseling amidst the pandemic in Indonesia (WHO, 2022b).

IMPLEMENTATION METHOD

Enhanced knowledge and comprehension of breast anatomy, the mechanisms of milk production, and establishing proper attachment during breastfeeding among postpartum mothers will lead to an augmentation of self-efficacy linked to the belief in behavioral change. This initiative is implemented through in-person health counseling sessions employing a replica of breast anatomy. The target is postpartum mothers who are still being treated in hospital postpartum care.

Product Description: A replica of breast anatomy accompanied by comprehensive models and tools for demonstrating the expression of breast milk. The creation of the model involves utilizing a sports bra, enabling it to be affixed to a mannequin or a flat support surface (simulating a human chest). The frontal section is tailored to resemble the areola and nipples, employing flannel fabric in a hue mirroring the postpartum mother's areola. One of the nipples is connected to a nasogastric tube (NGT), which, in turn, links to a syringe capable of holding fluids, such as milk. This configuration is instrumental in illustrating the concept of milk release. The NGT employed possesses dimensions of Fr 3.5, with a diameter of 1.2 mm and a length of 35 cm. Meanwhile, the syringe employed has a capacity of 20 cc.

In practice, the syringe is filled with a milky white liquid. This fluid is illustrative of the response triggered by breast stimulation. Upon applying pressure to the syringe, a liquid akin to breast milk is simulated, thereby flowing through the NGT tube.

Figure 1. Front View of Breast Anatomy Replica Model

On the inside, a breast model is crafted using foam as the filling material, while the exterior fabric is adorned with printed images depicting lobes and fatty tissue. This approach serves the purpose of assuring mothers that nearly all individuals possess a comparable quantity of lobes within their breasts. Variations in breast size, whether minor or significant, are primarily influenced by the distribution of adipose tissue.

Figure 2. Inside View of Breast Anatomy Replica Model

Counseling sessions are scheduled to take place within the extended area of the postpartum care unit at X Hospital. The chosen approach involves the utilization of health education, facilitated by means of a replica model portraying breast anatomy. The counseling process will employ a PowerPoint (PPT) slide deck characterized by an engaging design and visual appeal.

RESULTS AND DISCUSSION

The counseling session is conducted on January 12, 2023, from 09:00 to 12:00 WIB. The counseling audience consisted of a total of 8 participants, comprising parents (both husband and wife) who were undergoing postpartum health monitoring after receiving care at postpartum care unit.

The counseling session centered on the theme of "exclusive breastfeeding" was systematically carried out in accordance with the established plan. The initial phase of the session involved participants completing a pre-test questionnaire through the gform platform, facilitated by teams and allocated a duration of 15 minutes.

The participant cohort comprised 8 pairs of parents, ranging in age from 25 to 33 years. A comprehensive portrayal of the participants' attributes is provided in the ensuing description.

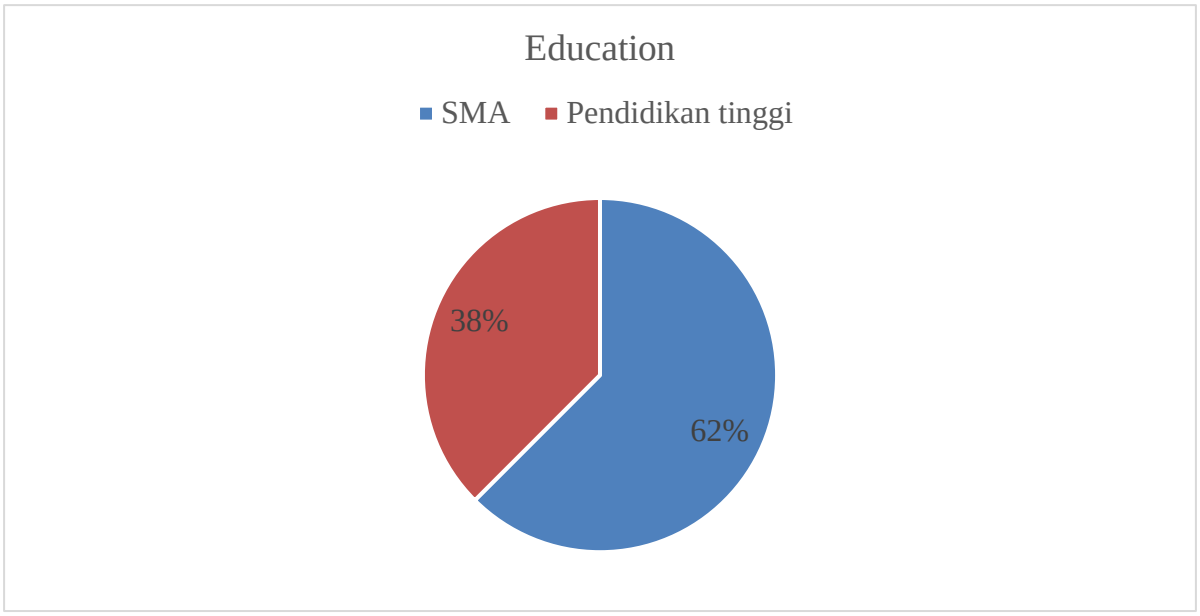

Figure 3. An overview of the education level of the participants

Based on the results, it was known that more than half of the participants who attended counseling had a higher education level (62%).

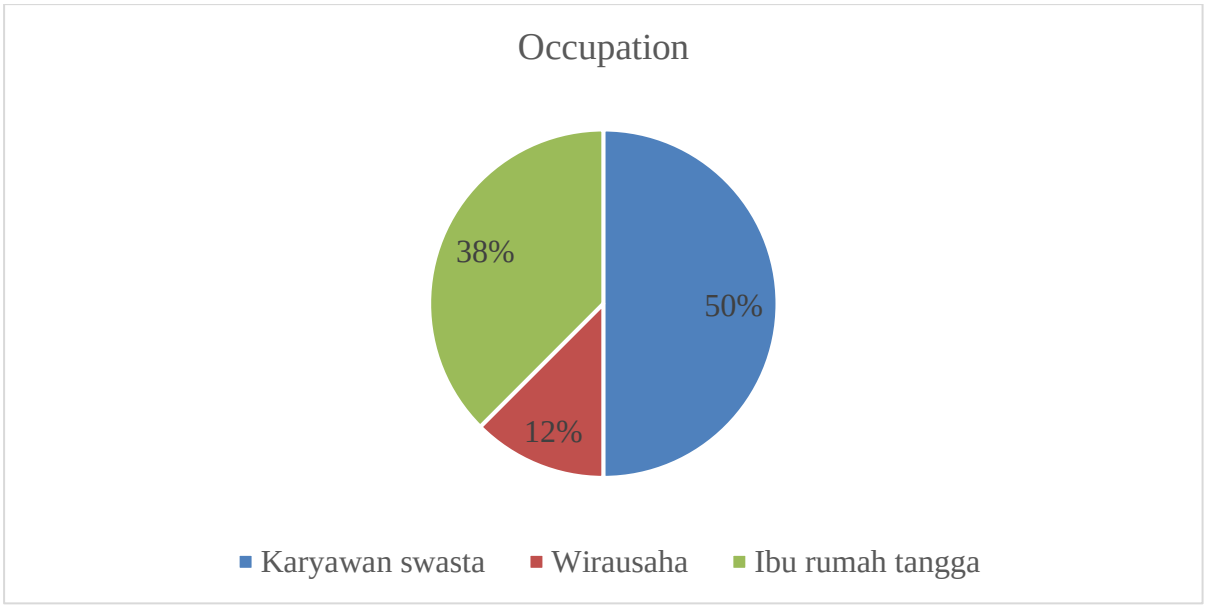

Figure 4. Job description of the participants

Based on Figure 4, it is known that half of the participants are private employees (50%), almost half are housewives (38%) and very few of the participants are entrepreneurs (12%).

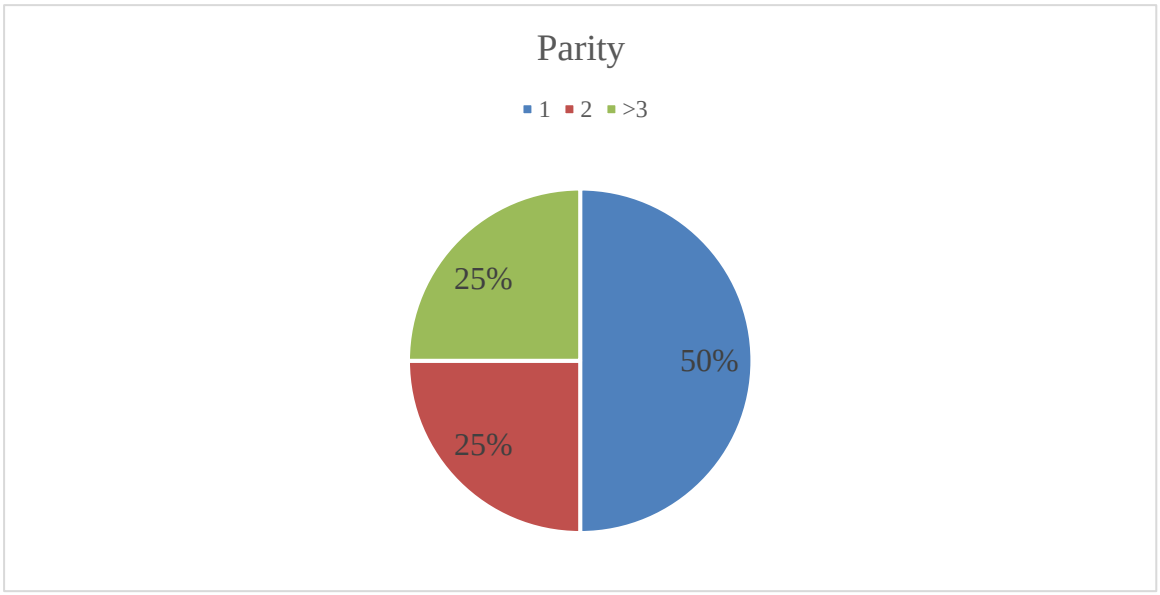

Figure 5. Description of parity (number of children) of participants

Based on Figure 5, it is known that half of parents are new parents, who have just had their first child (50%). The rest is divided between the number of children 2 and 3, each of which is 25%.

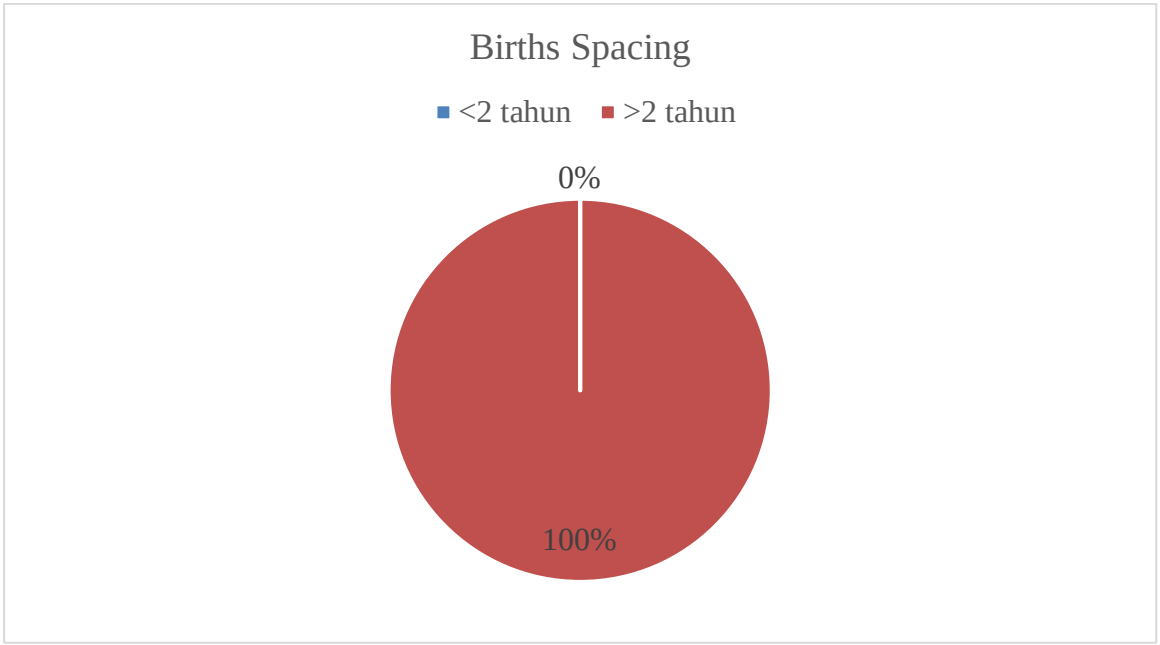

Figure 6.Description of the participants' birth spacing

Based on Figure 6, it is known that all participants who have more than 1 child have a birth spacing of > 2 years (100%).

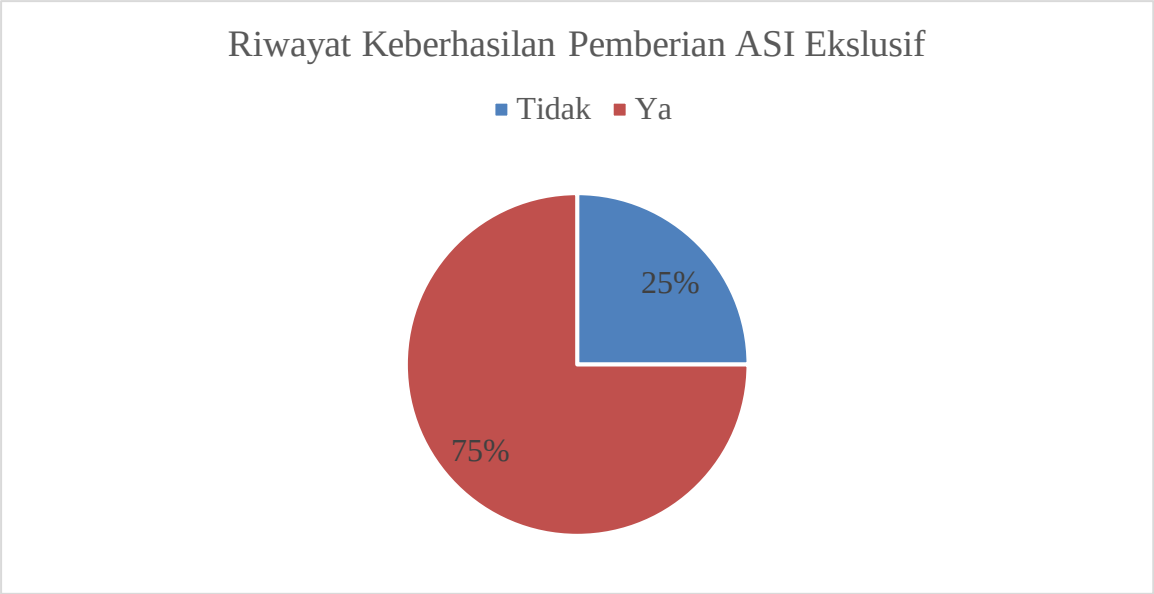

Figure 7. Overview of the history of exclusive breastfeeding

Based on Figure 7, it is known that most parents who have had children before succeeded in giving exclusive breastfeeding to their children (75%), but there were still a small number of parents who did not give exclusive breastfeeding until the child was 6 months old (25%).

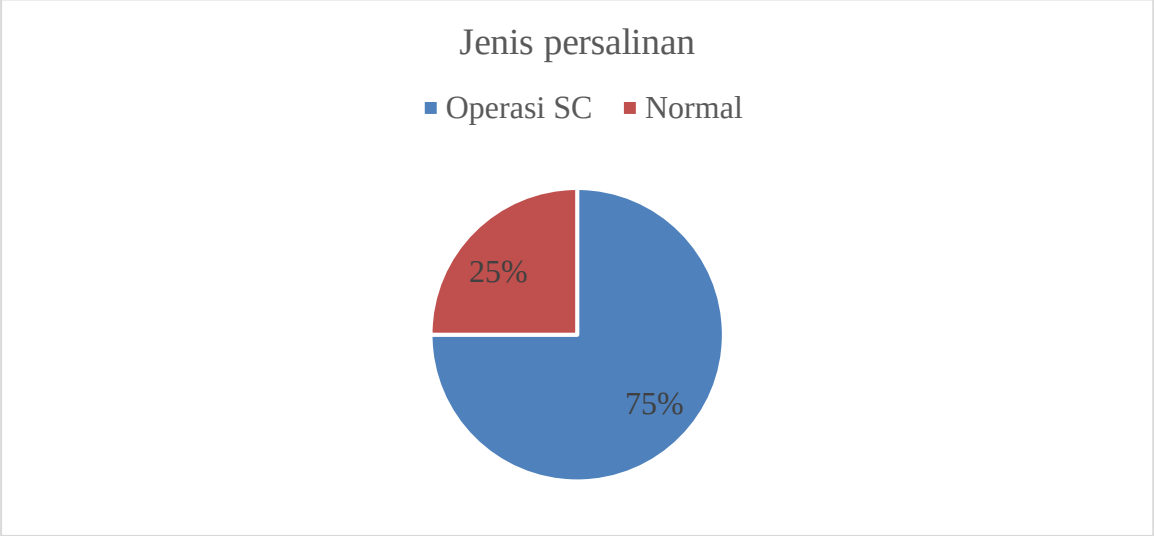

Figure 8. Description of the types of labor

Based on Figure 6, it is known that almost all women gave birth by the sectio caesarea method (75%), and the remaining 25% gave birth spontaneously vaginally.

The subsequent activity involved the presentation of the first segment, which provided insights into "Breast Anatomy and Milk Production." The second topics covering the subject of "Effective Attachment." The session for delivering these materials spanned 90 minutes, commencing at 09:30 and concluding at 11:00 WIB. This instructional phase also incorporated visual aids in the form of a Breast Anatomy model, serving to elucidate the three-dimensional configuration of the breasts, along with the dynamics of milk flow through them. The primary objective of the initial segment was to establish a comprehensive understanding among parents (both mothers and fathers) that breast size does not bear an impact on milk production. This

concept was vividly illustrated through a clear depiction showcasing the composition of lobes and adipose tissue within the breast.

Figure 9. Submission of the Topic "Breast Anatomy and Milk Production"

When delivering material on breast anatomy and milk production, it was also conveyed that milk expenditure is supply and demand, which means that milk production is adjusted to the frequency of emptying the breasts during breastfeeding, both direct breastfeeding and expressing milk. In this session, there was a question "What about the storage period for breast milk that has been expressed, in preparation for work after the leave ends?". This information is answered through information recommended by the CDC in the following table:

Table 1. Storage period of expressed breast milk (CDC, 2022)

Kind of milk	Storage and Temperature		
	Room temperature (25-C)	Refrigerator (4-C)	Breast Milk Freezer (-18-C)
Fresh Breast Milk	<4 hours	<4 days	<6 months, but still tolerated 12 months
Thawed Frozen Breast Milk	1-2 hours	<24 hours	It's not allowed to re-freeze frozen breast milk that has been thawed
Letlovers from feeding (babies who havent finished their milk)	<2 hours after the baby last fed the same bottle		

The activity continued with the presentation of material on "good attachment". In this session, it was demonstrated how to properly attach and position breastfeeding. This is useful to avoid blisters on the nipples which cause pain when breastfeeding.

Figure 10. Delivery of the material "Good Attachment"

In this session, it was also conveyed that there are several breastfeeding positions, one of which is breastfeeding in a lying position to be more vigilant when the mother is breastfeeding by paying attention to the breast not covering the baby's nose causing it to occur.

After the two materials have been given, the participants are again given a post-test in gform form. The description of the evaluation of increasing knowledge is calculated by increasing the average score compared between the pre-test and post-test.

The average evaluation results are illustrated as follows:

a. Pre Test, Conducted at the beginning of counseling with the results:
   Highest Score: 70
   Lowest Score: 40
   Average Score: 55
b. Posttest, Conducted at the end of counseling with the results:
   Highest Score: 100
   Lowest Score: 80
   Average Score: 90

From the results of the evaluation of 8 participants who filled out the post-test, it was found that there was an increase in knowledge from the participants after being given information regarding breast anatomy, milk production, and good attachment by 35%.

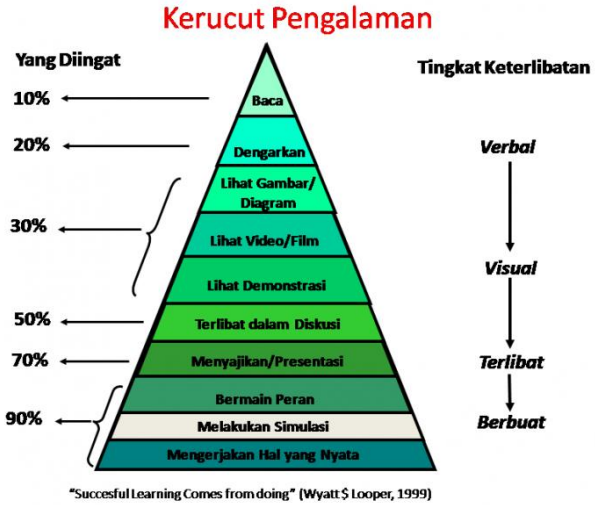

Figure 11. Pyramid of Learning Experience

The findings from the activity evaluation, indicating a 35% increase in knowledge, align with the theory proposed by Edgar Dale. According to Dale's theory, the utilization of the "Pyramid of Experience" method to enhance knowledge, which integrates visual and verbal components (through the use of audio-visual PowerPoint presentations and verbal props), leads to a 30% increase.

CONCLUSION

Community service activities are executed proficiently, encompassing all stages from planning to evaluation. The utilization of the fabricated breast model stands as one effective medium for conveying information accurately. Knowledge enhancement is assessed through the comparison of pre-test and post-test scores. The outcomes of the endeavor are evident in the noteworthy 35% increase in knowledge.

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